Great Slave Cruising Club Yard Electrification

October 2013

Initial Design Brief/Proposal

OVERVIEW

It is desirable to have electricity available in the GSCC yard for members to use for vessel maintenance. Bringing power to the site from the highway has previously been investigated and proved to be prohibitively expensive due primarily to the cost of installing the required power poles.

We have a time-sensitive opportunity to partner with the Giant Mine Remediation project as they intend to bring power to an air monitoring station on our site. If we coordinate with their installation (planned for fall 2013) we can have a power line run to a 'power building' with a service mast and meter. Additional work can be done in the spring and future years to add outlets on the power building and eventually underground power lines throughout the yard for lighting and additional electrical outlets.

GENERAL CONSIDERATIONS & DESIGN FEATURES

1. Long extension cords are undesirable for the reasons listed below. Therefore, power should be available within 10 metres everywhere in the yard.
    - Long cords are a tripping hazard
    - Long cords cause voltage drop – can damage tools and equipment
    - Voltage drop causes higher current – cord melting and fire hazard – club has little control over members using too light gauge cords
    - Long cords more likely to get damaged – exposed wires are electrocution and shorting hazard

2. Power should be available to every boat in the yard without having to run a cord across the road for the following reasons.
    - Driving over cords is dangerous – vehicle could pull cord – very unsafe if a tool is in use
    - Driving over cords damages cords which could cause bare wires and shorting.

3. All 120 volt circuits should be 20 amps to accommodate tools (standard residential circuit is 15 amps)

4. Roughly 20 circuits should be available throughout the yard.

5. Some 240 volt 50 amp circuits should be available for equipment such as welders.

6. Overhead power lines are not acceptable within yard area due to moving and storing boats with masts up
    - All distribution wiring must be buried armoured cable, installed to allow heavy equipment to pass over without damage.

7. Incoming service should come to a central distribution hub (shed/sea can/building) which should contain switching (breakers) for all circuits.
    - Should be locked with all *Full* members having keyed access to turn on power as needed.
    - Power to outlets should be switched off when not in use by members.

8. Yard lighting should be installed along with power distribution.
    - Light poles should be sized and located to avoid interference with moving boats with the crane or on trailers.

PROJECT SCHEDULE

The project should be broken up into phases to allow expenditures of approx. $8-12K per year.

For example:

- Phase 1: Fall 2013
    i. Introduce 3 phase 200 amp service to the boatyard

- Phase 2: Spring 2014
    i. Increase the number of outlets and circuits in the power building

- Phase 3: Spring 2015
    i. trench and install power lines with sub panels (4 outlets each and lighting circuits) at Locations "A" and "B" along inner edge of pier.
    ii. trench and install power lines with sub panels (4 outlets each and lighting circuit) at Locations "C" and "D" in yard

- Phase 4: Spring 2016
    i. install light stands at locations 1 through 6
    ii. install ground lighting along pier

POWER BUILDING

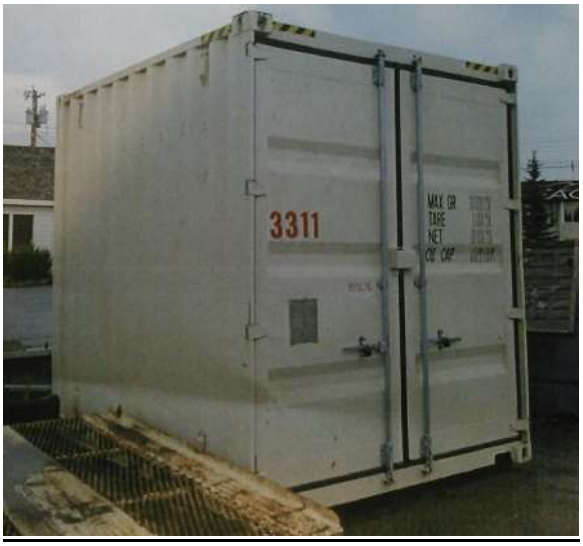
A sea can is proposed because:

- The structure is readily accepted as being suitable to install a permanent power supply without further design work, permitting, or construction of a stick built structure.
- A sea can is easily secured against vandalism and forced entry
- A sea can would have minimal ongoing maintenance requirements

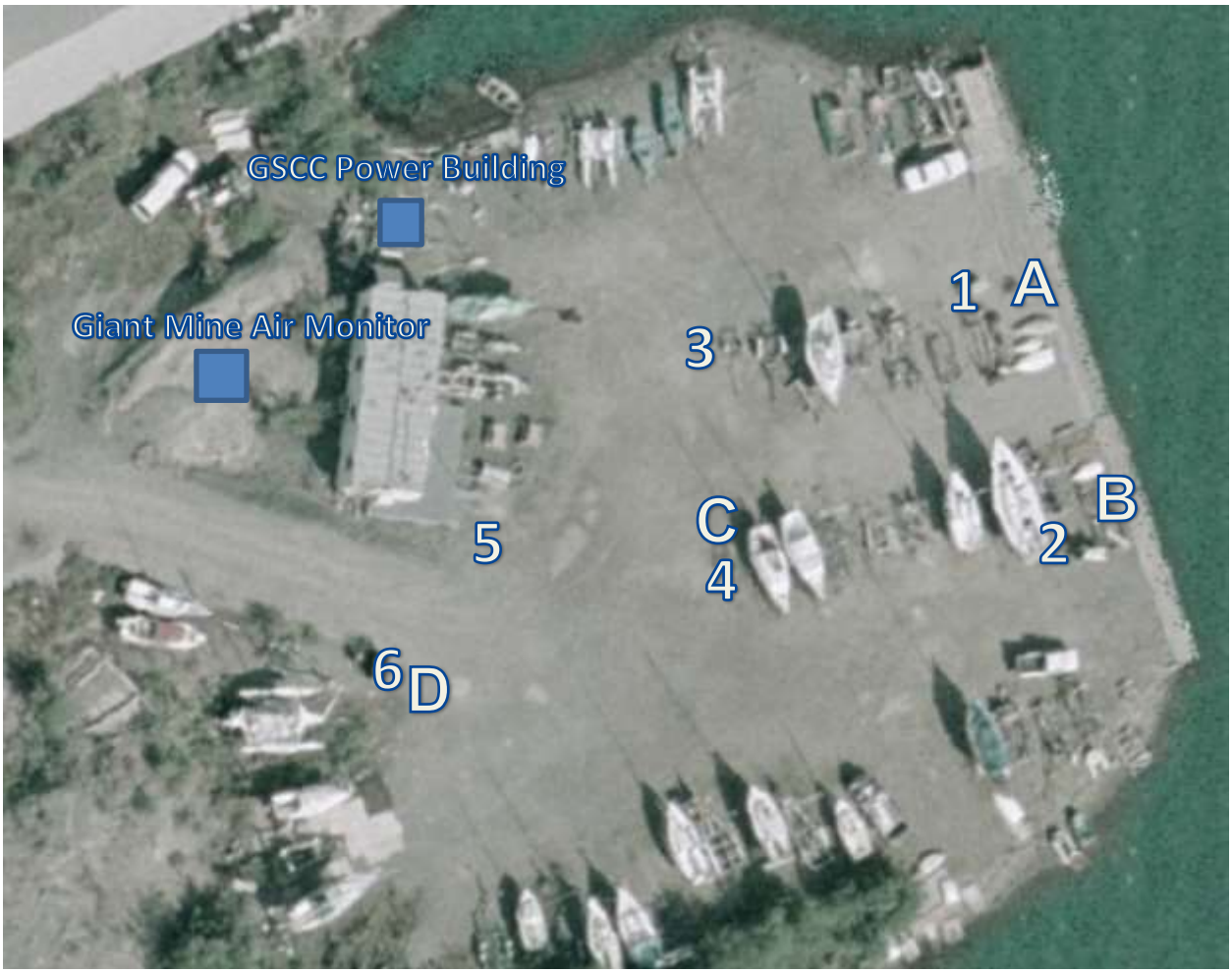
Should the club's requirements change out into the future:

- A sea can with the mast, meter, panel installation could be used at alternative sites, should the club lose it's land lease and be moved
- A sea can with the mast, meter, panel installation as an asset would be attractive for resale to any mid sized construction firm as a mobile and reusable construction site electrical service.
- A sea can stripped of it's electrical components could be sold as a sea can or re-tasked to another use of the club.

For Example:
Brand New - 6' - 6'6" Wide, 6'3" High, 6' Long, (1450 lbs) $1950.00 CDN FOB Edmonton In Stock
Brand New - 8' - 7'2" Wide, 7'6" High, 8' Long, (2100 lbs) $2950.00 CDN FOB Edmonton In Stock



PROPOSED SITE PLAN



GIANT MINE REMEDIATION PROJECT

Several air quality monitoring stations are to be installed as part of the remediation project. One is to be located on the GSCC property. The current prediction is for the remediation project to be completed in 2025 and that they have a commitment to maintain the monitoring facility for 2 years beyond the period of the completion of the remediation. This will ensure continued use of the power lines until 2027 (14 years). Once the two year requirement to maintain monitoring has been completed it is unknown what will happen to the power lines. The poles and lines are to be purchased by the Giant Mine Remediation Project and remain their property even though the Northwest Territories Power Corporation is doing the installation. At the conclusion of the project, NTPC may accept the ownership of the poles and lines or may require they be taken down and new poles and lines be installed.

The structure they plan to use in his words will be a glorified sea-can. They are planning on a building that will be 8' x 12' x 8' high. The building will have an enclosed ladder mounted to it. There will be no windows only a door and on top of the building there will be several collection stacks. (stove pipes). The building will house monitoring equipment for the primary purpose of collecting information on the amount and type of particulate in the air. One piece of equipment that the building will have is a vacuum collection unit that will run for a 24 hr period every three days. The noise is supposed to be at the same level as a portable generator during it's run cycle.

They are planning on using the current poles and lines maintaining the same routing of power lines. They plan on locating a transformer on the power pole closest to our gate post and extending lines from that point to the power mast on their building. They may have the need to place one pole right beside their installation to adjust the height of the power lines. If this is the case an alternative location for our installation would be at the foot of the laneway right in front of the clubhouse and the power line would run parallel with the laneway.